DOCKET NO.: DMCI-0099

PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Daphna Havkin-Frenkel, et al.

Serial No.: 10/087,714

Filing Date: February 28, 2002

Group Art Unit: 1638

Examiner: Not Yet Assigned

VANILLIN BIOSYNTHETIC PATHWAY ENZYME FROM VANILLA

PLANIFOLIA

DATE OF DEPOSIT: I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL, POSTAGE PREPAID ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO THE ASSISTANT COMMISSIONER FOR PATENTS, WASHINGTON, DC 20231.

TYPED NAME: Scott E. Scioli **REGISTRATION NO.: 47,930**

Assistant Commissioner for Patents Washington, D.C. 20231

Dear Sir:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §1.56 and in accordance with 37 C.F.R. §§1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 C.F.R. §1.56(b).

 \boxtimes In accordance with §1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of the above identified application as set forth in §1.491, before the mailing date of a first Office Action on the merits of the above-identified application, or before the mailing date of a first office action after the filing of request for continued examination under §1.114, no additional fee is required.

are not enclosed herewith.

- 2 -

PATENT

DOCKET NO.: DMCI-0099

- In accordance with §1.98(d), copies of the following references listed on the attached Form PTO-1449 are not enclosed herewith because they were previously cited by or submitted to the U.S. Patent and Trademark Office in patent application(s) for which a claim for priority under 35 U.S.C.§120 have been made in the instant application:
- Copies of references 1-5 and 24-27 listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior application Serial No. 09/462,576, filed May 25, 2000.
 - If any of the foregoing publications are not available to the Examiner, Applicant will endeavor to supply copies at the Examiner's request.

Please charge any deficiency or credit any overpayment to Deposit Account No. 23-3050. This form is submitted in duplicate.

There are no listed references which are not in the English language.

Date: June 7, 2002

Scott E. Scioli

Registration No. 47,930

WOODCOCK WASHBURN LLP One Liberty Place - 46th Floor Philadelphia, PA 19103

Telephone: (215) 568-3100 Facsimile: (215) 568-3439

© 2001 WW



Sheet 1 of 4

F			T	Sheet 101
Forn	PTO-1449 Modified	Docket No. DMCI-0099	Serial No. 10/087,714	
	of Patent and Publications Cited by Applicant several sheets if necessary)	Applicant Daphna Havkin-Frenkel, et al.		
	Department of Commerce nt and Trademark Office	Filing Date Group		
ОТН	ER DOCUMENTS (Including Autho	r, Title, Date, Pertine	nt Pages, Etc.)	2002 1500/3
1	Funk, C., et al., "P.E. phenylopropan planifolia Andr. II. Effects of precurs Physiol., 1990, 94, 95-101			
2	Funk, C., et al., "P.E. phenylopropanoid metabolism in suspension cultures of <i>Vanilla planifolia</i> Andr. III. Conversion of 4-methoxycinnamic acids into 4-hydroxybenzoic acids," <i>Plant Physiol.</i> , 1990 , <i>94</i> , 102-108			
3		Do, et al., "Plant tissue culture for production of secondary and Technology, 1997, 51(11), 56-58, 61		
4	Risch, S.J., et al., "Spices flavor cher Symposium Series 660, American Ca	hemistry and antioxidant properties," ACS Chemical Society, 1996, 30-39		
5	Rao, et al., "Vanilla flavour: production by conventional and biotechnological routes," J. of the Science of Food and Agriculture, 2000, 80, 289-304			
6	Amed, S.U., et al., "The plant vacuolar sorting receptor AtELP is involved in transport of NH2-terminal propeptide-containing vacuolar proteins in <i>Arabidopsis thaliana</i> ," J. Cell Biology, 2000, 149, 1335-1344			
7	Domoto, C., et al., "Isolation and characterization of two distinct cDNA clones encoding corn seed cysteine proteinases," <i>Biochim. Biophys. Acta</i> , 1995 , <i>1263(3)</i> , 241-244			
8	Drenth, J., et al., "Structure of papain," Nature, June 8, 1968, 218(145), 929-932			
9	Frenkel, D.H., et al., "Vanilla," Spices: Flavor Chemistry and Antioxidant Properties, American Chemical Society, Washington, Risch, et al. (Eds.), Chapter 4, 1997, 29-40			
10	Funk, C., et al., "Phenylpropanoid metabolism in suspension cultures of <i>Vanilla planifolia</i> Andr. IV. Induction of vanillic acid formation," <i>Plant Physiol</i> , 1992 , <i>99</i> , 256-262			
EXAMINER		DATE CONSIDER	ED	
t	to the second se			

List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office OTHER DOCUMENTS (Including Author, 11 Gelvin, S.B., (Eds.), et al., "Genetic mstrains to improve tranformation of recessiology Manual, 1994, B4, 1-13 12 Griffiths, C.M., et al., "Sequencing, exsenescence-enhanced cDNA from Zeaaleurain," Plant Mol. Biol., 1997, 34, 8 13 Gunčar, G., et al., "Crystal structure of resolution: Location of the mini-chain aminopeptidase function," Structure, Jaminopeptidase function," Structure, Jaminopeptidase function, "Structure, Jaminopeptidase function," Structure, Jaminopeptidase function, "Structure, Jaminopeptidase function," Structure, Jaminopeptidase function, "Str	pression pattern and mays with high he 15-821 porcine cathepsin C-terminal carboxy and sequencing of teine proteinases,'	Group 1638 ment Pages, Etc.) be bacterium tumefædens cies," Plant Molecter ad RFLP mapping of a mology to oryzain γ and H determined at 2.1 A yl group defines cathepsin (1), 51-61 cDNA for rat cathepsin H FEBS Letts., December ing bentgrass (Agrostis	
Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office OTHER DOCUMENTS (Including Author, 11 Gelvin, S.B., (Eds.), et al., "Genetic m strains to improve tranformation of rec Biology Manual, 1994, B4, 1-13 12 Griffiths, C.M., et al., "Sequencing, ex senescence-enhanced cDNA from Zea aleurain," Plant Mol. Biol., 1997, 34, 8 13 Gunčar, G., et al., "Crystal structure of resolution: Location of the mini-chain aminopeptidase function," Structure, J 14 Ishidoh, K., et al., "Molecular cloning homology in pro-peptide regions of cy, 1987, 226(1), 33-37 15 Lee, L., et al., "Transformation and reg palustris Huds.) Protoplasts," Crop Sc. 16 Löscher, R., et al., "Biosynthesis of p- coumaroyl-coenzyme A in cell-free ex cultures," Plant Physiol., 1994, 106, 2	Paphna Havkin-Filing Date February 28, 2002 Title, Date, Pertinal anipulation of Agree alcitrant plant spectoression pattern animays with high health-self porcine cathepsin C-terminal carbox anuary 15, 1998, 6 and sequencing of teine proteinases, deneration of creep eneration of creep	Group 1638 ment Pages, Etc.) be bacterium tumefædens cies," Plant Molecter ad RFLP mapping of a mology to oryzain γ and H determined at 2.1 A yl group defines cathepsin (1), 51-61 cDNA for rat cathepsin H FEBS Letts., December ing bentgrass (Agrostis	
Patent and Trademark Office OTHER DOCUMENTS (Including Author, 11 Gelvin, S.B., (Eds.), et al., "Genetic m strains to improve tranformation of rec Biology Manual, 1994, B4, 1-13 12 Griffiths, C.M., et al., "Sequencing, ex senescence-enhanced cDNA from Zea aleurain," Plant Mol. Biol., 1997, 34, 8 13 Gunčar, G., et al., "Crystal structure of resolution: Location of the mini-chain aminopeptidase function," Structure, J 14 Ishidoh, K., et al., "Molecular cloning homology in pro-peptide regions of cytonesty 1987, 226(1), 33-37 15 Lee, L., et al., "Transformation and regpalustris Huds.) Protoplasts," Crop Sc. 16 Löscher, R., et al., "Biosynthesis of placoumaroyl-coenzyme A in cell-free excultures," Plant Physiol., 1994, 106, 20	Title, Date, Pertinal inipulation of Agral alcitrant plant special pression pattern and mays with high he 15-821 porcine cathepsin C-terminal carbox anuary 15, 1998, 6 and sequencing of teine proteinases,'	Group 1638 ment Pages, Etc.) bacterium tumefactens cies," Plant Molecter ad RFLP mapping of a mology to oryzain γ and H determined at 2.1 A yl group defines cathepsin (1), 51-61 cDNA for rat cathepsin H 'FEBS Letts., December ing bentgrass (Agrostis	
 Gelvin, S.B., (Eds.), et al., "Genetic m strains to improve tranformation of rec Biology Manual, 1994, B4, 1-13 Griffiths, C.M., et al., "Sequencing, ex senescence-enhanced cDNA from Zea aleurain," Plant Mol. Biol., 1997, 34, 8 Gunčar, G., et al., "Crystal structure of resolution: Location of the mini-chain aminopeptidase function," Structure, J Ishidoh, K., et al., "Molecular cloning homology in pro-peptide regions of cyt 1987, 226(1), 33-37 Lee, L., et al., "Transformation and regpalustris Huds.) Protoplasts," Crop Sc. Löscher, R., et al., "Biosynthesis of p-l coumaroyl-coenzyme A in cell-free excultures," Plant Physiol., 1994, 106, 2 Ricard, J., et al., "Subunit interactions 	pression pattern and mays with high he 15-821 porcine cathepsin C-terminal carboxy and sequencing of teine proteinases,'	cies," Plant Molecters ad RFLP mapping of a mology to oryzain γ and H determined at 2.1 A yl group defines cathepsin (1), 51-61 cDNA for rat cathepsin H' FEBS Letts., December ing bentgrass (Agrostis	
 Gelvin, S.B., (Eds.), et al., "Genetic m strains to improve tranformation of rec Biology Manual, 1994, B4, 1-13 Griffiths, C.M., et al., "Sequencing, ex senescence-enhanced cDNA from Zea aleurain," Plant Mol. Biol., 1997, 34, 8 Gunčar, G., et al., "Crystal structure of resolution: Location of the mini-chain aminopeptidase function," Structure, J Ishidoh, K., et al., "Molecular cloning homology in pro-peptide regions of cyt 1987, 226(1), 33-37 Lee, L., et al., "Transformation and regpalustris Huds.) Protoplasts," Crop Sc. Löscher, R., et al., "Biosynthesis of p-l coumaroyl-coenzyme A in cell-free excultures," Plant Physiol., 1994, 106, 2 Ricard, J., et al., "Subunit interactions 	pression pattern and mays with high he 15-821 porcine cathepsin C-terminal carboxy and sequencing of teine proteinases,'	cies," Plant Molecters ad RFLP mapping of a mology to oryzain γ and H determined at 2.1 A yl group defines cathepsin (1), 51-61 cDNA for rat cathepsin H' FEBS Letts., December ing bentgrass (Agrostis	
senescence-enhanced cDNA from Zea aleurain," Plant Mol. Biol., 1997, 34, 8 13 Gunčar, G., et al., "Crystal structure of resolution: Location of the mini-chain aminopeptidase function," Structure, J 14 Ishidoh, K., et al., "Molecular cloning homology in pro-peptide regions of cyt. 1987, 226(1), 33-37 15 Lee, L., et al., "Transformation and regpalustris Huds.) Protoplasts," Crop Sc. 16 Löscher, R., et al., "Biosynthesis of placement of placement of placement of placement of placement of placement of plant Physiol., 1994, 106, 27 17 Ricard, J., et al., "Subunit interactions	mays with high ho 15-821 porcine cathepsin C-terminal carboxy anuary 15, 1998, 6 and sequencing of teine proteinases,'	mology to oryzain γ and H determined at 2.1 A yl group defines cathepsin (1), 51-61 cDNA for rat cathepsin H ' FEBS Letts., December ing bentgrass (Agrostis	
resolution: Location of the mini-chain aminopeptidase function," Structure, J 14 Ishidoh, K., et al., "Molecular cloning homology in pro-peptide regions of cyt. 1987, 226(1), 33-37 15 Lee, L., et al., "Transformation and regpalustris Huds.) Protoplasts," Crop Sc. 16 Löscher, R., et al., "Biosynthesis of ploumaroyl-coenzyme A in cell-free excultures," Plant Physiol., 1994, 106, 27 17 Ricard, J., et al., "Subunit interactions	C-terminal carboxy anuary 15, 1998, 6 and sequencing of teine proteinases,'	yl group defines cathepsin (1), 51-61 cDNA for rat cathepsin H' FEBS Letts., December ing bentgrass (Agrostis	
homology in pro-peptide regions of cyth 1987, 226(1), 33-37 15 Lee, L., et al., "Transformation and regional palustris Huds.) Protoplasts," Crop Sc. 16 Löscher, R., et al., "Biosynthesis of p-leoumaroyl-coenzyme A in cell-free excultures," Plant Physiol., 1994, 106, 27 17 Ricard, J., et al., "Subunit interactions	teine proteinases,'	' FEBS Letts., December ing bentgrass (Agrostis	
 palustris Huds.) Protoplasts," Crop Sc. 16 Löscher, R., et al., "Biosynthesis of p-l coumaroyl-coenzyme A in cell-free ex cultures," Plant Physiol., 1994, 106, 2 17 Ricard, J., et al., "Subunit interactions 	_		
coumaroyl-coenzyme A in cell-free excultures," <i>Plant Physiol.</i> , 1994 , <i>106</i> , 27 17 Ricard, J., et al., "Subunit interactions	., 1996 , <i>36</i> , 401-40		
	Löscher, R., et al., "Biosynthesis of p-hydroxybenzoate from p-coumarate and p-coumaroyl-coenzyme A in cell-free extracts of <i>Lithospermum erythrorhizon</i> cell cultures," <i>Plant Physiol.</i> , 1994 , <i>106</i> , 271-279		
	Ricard, J., et al., "Subunit interactions in enzyme catalysis kinetic models for one-substrate polymeric enzymes," <i>European J. Biochemistry</i> , 1974 , <i>41</i> , 479-497		
	Rogers, J.C., et al., "Aleurain: a barley thiol protease closely related to mammalian cathepsin H," <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 1985 , <i>82(19)</i> , 6512-6516		
	Schnitzler, J.P., et al., "Biosynthesis of p-hydroxybenzoic acid in elicitor-treated carrot cell cultures," <i>Planta</i> , 1992 , <i>188</i> , 594-600		
Strausberg, R., "Cathepsin H [Homo so of Health, Mammalian Gene Collection Cancer Institute, Bethesda, MD, 2000,	i (MGC), Cancer (

JUN 1 3 2002 &

Sheet 3 of 4

	RADEMARK				
Form	PTO-1449 Modified	Docket No. DMCI-0099	Serial No. 10/087,714		_
	of Patent and Publications Cited by Applicant everal sheets if necessary)	Applicant Daphna Havkin-Fi	enkel, et al.	TECH CEN	NUC
Pate	Department of Commerce nt and Trademark Office	Filing Date Group		1 8	
ОТН	ER DOCUMENTS (Including Au	thor, Title, Date, Pertin	ent Pages, Etc) (2) (3)	2002
21	Ueda, T., et al., "Circadian and se protease gene," Plant Mol. Biol.,	enescence-enhanced expre			steine
22	Watanabe, H., et al., "Molecular of multiple cysteine proteinases of ri 16897-16901		_		6,
23	Yazaki, K., et al., "Formation of p free extract of <i>Lithospermum eryt</i> 2233-2236	. •	-		-
					···
EXAMINER		DATE CONSIDER	RED		

•	*	UU O	N 1 3 2002 48 3	,			
	Form :	PTO-1449 Modifi	ed PRADENMAN	Docket No.	Serial No.	Sheet 4of 4	
List of Patent and Publications Cited by Applicant (Use several sheets if necessary)			Applicant Daphna Havkin-Frenkel, et al. Filing Date February 28, 2002 Tolonomy Group 1638 Filing Date February 28, 2002				
······································		epartment of Commer and Trademark Office		Filing Date February 28, 2002 Group 1638			
		U. S	. PATENT DO		<u> </u>		
Examiner Initial		Document No.	Date	Name	Class	Subclass	
•	24	5,057,424	10/15/91	Knuth			
	25	5,279,950	01/18/94	Labuda			
	26	5,552,307	09/03/96	Kessler			
	27	5,656,482	08/12/97	Knorr			
		FORE	GN PATENT	DOCUMENTS			
Examiner Initial		Document No.	Date	Country	Translation YES NO		
	28	WO 99/03975	01/28/99	PCT			
			<u></u>				
EXAMINER			DATE CONSIDERED				